CLAIMS:

What is claimed is:

1.   A storage area network (SAN) comprising:

      a network interconnection system;

      at least one machine selected from the group consisting of a host and an appliance, the machine coupled to the network interconnection system;

      at least one storage system coupled to the network interconnection system;

      a network management system;

      wherein the network management system further comprises:

      at least one management client; and

      at least one integrated management agent running on a machine of the at least one machine; and

      wherein the integrated management agent comprises an object manager configured such that the integrated management agent is expandable to support an additional network device types by installing device type-specific modules while the integrated management agent is running.

2.   The storage area network of Claim 1, wherein the integrated management agent further comprises a consistent user interface module, and wherein the consistent user interface module supports a web-based and a Windows-based user interface.

3.   The storage area network of Claim 1, wherein the integrated management agent further comprises and a consistent user interface module coupled to the object manager, wherein at least one device type-specific module is installed, and wherein the at least one device type-specific module further comprises a device handler for coupling a storage system to the integrated management agent.

4.   The storage area network of Claim 3, wherein at least one device type-specific module further comprises code for supporting a plurality of protocols to communicate with a plurality of devices.

5.   The storage area network of Claim 4, wherein the management system further comprises a distributed error and status handler capable of handling error and status information from at least one device.

1   6.   The storage area network of Claim 5, wherein at least a first level of the
2   distributed error and status handler executes on the at least one device.

1   7.   The storage area network of Claim 5, wherein at least one machine selected
2   from a group consisting of a host and an appliance, incorporates a second level of
3   error and status handler.

1   8.   The storage area network of Claim 5, wherein the distributed error and status
2   handler further comprises a centralized global error and status handler level.

1   9.   The storage area network of Claim 8, wherein the centralized global error and
2   status handler level executes upon a fault tolerant system in a storage are network
3   management environment.

1   10.   The storage area network of Claim 1, wherein the integrated management
2   agent further comprises a trap handler coupled to a notification module to receive
3   traps from at least one SAN device and send notification to at least one system
4   administrator.

1   11.   The storage area network of Claim 10, wherein the integrated management
2   agent further capable of sending traps to support at least a second management
3   system.

1   12.   The storage area network of Claim 1, wherein the integrated management
2   system is capable of being configured with a configuration utility.

1   13.   The storage area network of Claim 1, wherein the object manager further
2   comprises a dynamic list indicating device types the integrated management agent is
3   capable of handling, wherein installing device type-specific modules causes addition
4   of device types to the dynamic list, and wherein addition of device types to the
5   dynamic list does not require shutting down the integrated management agent.

1   14.   The storage area network of Claim 13, wherein the network interconnection
2   system further comprises at least one fibre channel switch, and wherein a device type-
3   specific module is type specific to the at least one fibre channel switch.

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15. The storage area network of Claim 1, wherein the integrated management system further comprises a firmware download module with unified user interface hiding device specific firmware download process and characteristics from the administrator.

16. The storage area network of Claim 1, wherein the integrated management agent is capable of discovering devices and agents in the SAN and their interconnection by applying a conglomerate method comprising at least two elements selected from the group consisting of host and device agent broadcasting, multicasting device identity, collecting addresses from network traffic, collecting information from a name server, scanning a set of ranges of address supplied in configuration information, and collecting information about devices from configuration information.

17. The storage area network of Claim 1, wherein the integrated management agent further capable of discovering devices and agents in the SAN and their interconnection by applying a conglomerate method comprising at least three elements selected from the group consisting of host and device agent broadcasting, multicasting device identity, collecting addresses from network traffic, collecting information from a name server, scanning a set of ranges of address supplied in configuration information, and collecting information about devices from configuration information.